**Small Business Innovation Research/Small Business Tech Transfer**

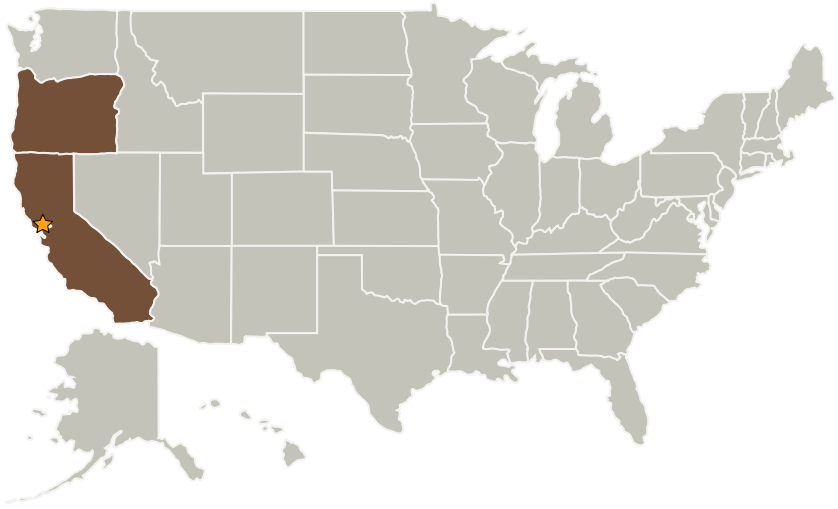
# Catalytic Decomposition of Gaseous Byproducts from Heat Melt Waste Compaction, Phase I

Completed Technology Project (2005 - 2005)

## Project Introduction

Volume reduction is a critical element of Solid Waste Management for manned spacecraft and planetary habitations. To this end, a Heat Melt Compaction System is under development at Ames Research Center. During the heating process, certain volatile organic vapors are produced. Here we propose the development of a catalytic system for the treatment of these gaseous byproducts which will decomposed volatile organics into harmless inorganic substances such as carbon dioxide and water. These products may then be rerouted to the Life Support System for reduction to produce water (from CO2), and electrolysis of water to yield oxygen. Feasibility of the catalytic methods will be demonstrated during the Phase I research. The follow-on Phase II effort will result in the design, assembly, rigorous testing, and delivery to NASA of a prototype system, sized to operate in conjunction with the NASA developed compaction system.

## Primary U.S. Work Locations and Key Partners



| Organizations Performing Work | Role | Type | Location |
|---|---|---|---|
| ★Ames Research Center(ARC) | Lead Organization | NASA Center | Moffett Field, California |
| UMPQUA Research Company | Supporting Organization | Industry | Myrtle Creek, Oregon |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## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Center / Facility:**

Ames Research Center (ARC)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

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| Primary U.S. Work Locations | |
|---|---|
| California | Oregon |

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

James R Akse

## Technology Areas

**Primary:**

- TX07 Exploration Destination Systems
  - TX07.1 In-Situ Resource Utilization
    - TX07.1.2 Resource Acquisition, Isolation, and Preparation